AMERICAN CONSULTING, INC.

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M E M O R A N D U M

DATE: March 31, 2004

TO: Mr. Jim Juricic, Manager
Environmental Assessment Section
Indiana Department of Transportation
848 Government Center North
100 North Senate Avenue
Indianapolis, Indiana 46204

FROM: Bob Hittle, Environmental Project Manager

RE: I-465 Indianapolis Northwest Fast Track
West 71st Street & West 86th Street
Interchange Improvements and Added Travel Lanes
Indianapolis, Marion County, Indiana
ACE Job No. IN20020736

CC: Ron Heustis, INDOT
Bruce Hudson, DLZ, w/ enclosure
Phil Kuntz, JSE
Mark Zwoyer, RWA, w/ enclosure
Jim Kovacs, ACE

This memo transmits two copies of the noise study prepared for the above referenced project. Please review this material and provide any comments you may have.

Acentech

Memorandum

DATE: March 31, 2004

TO: Bob Hittle, American Consulting, Inc

FROM: Paul Burgé, Senior Consultant,
INCE Board Certified

RE: INDOT, I-465 Westside
Preliminary Noise Analysis

Introduction and Background

Acentech was contracted to conduct a highway noise impact analysis for planned added travel lanes and interchange improvements for I-465 west of Indianapolis, Indiana, at 71st Street and 86th Street. The planned project improvements include new interchange ramps and added outside travel lanes approaching the interchanges and extend from approximately 0.5 mile south of 71st Street to approximately 0.5 mile north of 86th Street. The mainline improvements will follow the existing horizontal alignment with minor modifications of the profile elevation south of 86th Street. The project will be constructed within the existing right-of-way.

No increases in traffic volumes are anticipated as a result of the project, but the average traffic speeds are expected to increase as result of the added capacity provided by the improvements relative to the constrained flow resulting from the No-Build alternatives. Projected traffic data was supplied for design years 2006 and 2026. Traffic volumes will increase due to normally anticipated growth in travel demand throughout the study area.

Sensitive land uses near the proposed improvements include two residential neighborhoods, one on the northwest quadrant of each interchange. Both neighborhoods are comprised exclusively of single-family detached homes and each area has several dozen homes within a few hundred feet (200'-600') of the project right-of-way.

The southern neighborhood north of 71st Street and west of I-465, Chestnut Hills, includes several homes on Chestnut Hills Boulevard, Yearling Run, Tennessee Walk, Chestnut Hills Drive, and Keeneland Court. All the homes in this cluster are currently shielded from the highway by a 12 to 15 foot-high earthen berm. The homes in the northern portion of the subdivision are similarly shielded and are anticipated to experience comparable noise levels as the southern homes.

The northern neighborhood north of 86th Street and west of I-465, Ashworth at West 86th Street and Worthington at West 86th Street, includes several homes on Mariesi Drive, Bergeson Drive, and Cotton Creek Court. Homes in this cluster are separated from the highway right-of-way by a screen (of varying widths) of mature hardwood trees.

Noise Prediction Procedure

Noise levels for nearby noise sensitive receiver locations were predicted using the Federal Highway Administration Traffic Noise Model (TNM) highway noise prediction software. TNM version 2.5, the most recently updated version, was used for modeling this project. Existing and proposed highway geometry and receiver locations as well as project traffic data were input into the TNM noise models from information supplied to Acentech by American Consulting, Inc.

Limited noise measurement data were also supplied by American Consulting, Inc. in cooperation with DLZ, Inc. The ambient noise measurements were taken on March 15, 2004, generally during the evening peak hour traffic period. These measurements were not sufficient for the purpose of fully calibrating/validating the noise models, but the measured noise levels are generally closely correlated with the predicted noise levels.

The following table summarizes the results of the ambient noise measurements. The actual field data sheets are included as attachments to this document.

Ambient Noise Measurements							
Receiver Location	Receiver ID No.	Time (p.m.)		Distance to Road	Observed Meter Readings		
		Start	Stop		$L_{(eq)}$	$L_{(min)}$	$L_{(max)}$
6251 Yearling Run	1	4:20	4:35	450’	66.0	63.2	68.8
7357 Chestnut Hills	2	4:50	5:05	200’	64.4	59.1	74.1
Utility Easement	3	5:42	5:57	150’	75.8	73.3	78.9
8805 Bergeson Dr.	4	6:01	6:16	350	74.6	72.9	77.8
8741 Bergeson Dr.	5	6:24	6:39	450’	59.9	54.9	65.8

For each residential cluster, mainline travel and passing lanes, on-ramps and off-ramps, and nearby surface streets were modeled. Relevant topography was also modeled – in particular, the earthen berm protecting the homes in the Chestnut Hills Subdivision and the topographic relief in the northwest quadrant at West 86th Street.

Models were run for design years 2006 and 2026, with “Build” and “No-Build” alternatives for each. Traffic volumes were identical for both “Build” and “No-Build” alternatives, but mainline and ramp speeds were generally greater for “Build” alternatives assuming the addition of a new outside travel lane and improved ramp conditions. All noise levels were predicted for the loudest noise hour, in accordance with published Federal Highway Administration and Indiana Department of Transportation noise policy. A preliminary analysis determined

that the AM peak DHV traffic volumes would generally result in higher noise levels for receiver locations on the southbound side of the highway.

Applicable Noise Policy

This analysis was performed in accordance with applicable Indiana Department of Transportation noise policy. Traffic noise impacts occur if either of two conditions are met:

1) the predicted levels "approach or exceed" the Noise Abatement Criteria; or,
2) the predicted traffic noise levels "substantially exceed" the existing noise level.

"Approach or exceed" means that future levels are higher than 1 dBA $L_{eq}(h)$ below the appropriate Noise Abatement Criteria. The exterior Noise Abatement Criteria is to be used in all studies except in cases where no exterior activities are affected by traffic noise. The Noise Abatement Criteria are applicable to the consideration of traffic noise abatement measures, not to the degree of abatement.

"Substantially exceed" means that predicted traffic noise levels exceed existing noise levels by 15 dBA or more.

FHWA NOISE ABATEMENT CRITERIA IN DECIBELS (HOURLY A-WEIGHTED SOUND LEVEL)

Activity Level	NAC, $L_{eq}(h)$	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above
D	----	Undeveloped land
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

The policy states that mitigation measures proposed must be both feasible and reasonable. Indiana Department of Transportation noise policy states that noise mitigation is feasible when mitigation measures can reduce noise levels at impacted receivers by at least 5 dBA. Mitigation is considered reasonable if the

cost of mitigation is less than $30,000 per protected dwelling unit (with each receiver location receiving at least a 5 dBA noise reduction considered to be protected).

Predicted Noise Levels and Noise Impacts

A summary of the predicted noise levels for both neighborhoods are presented in the tables below. Each table includes the range of predicted noise levels for modeled receivers in that neighborhood and the total number of project noise impacts for each design year alternative.

Southern Neighborhood, I-465 at 71st Street (35 modeled receivers)

Design Year & Alternative	2006 No-Build	2006 Build	2026 No-Build	2026 Build
Noise Level Range (dBA)	57-65	58-66	57-65	59-66
Noise Impacts	0	0	0	2

Northern Neighborhood I-465 at 86th Street (28 modeled receivers)

Design Year & Alternative	2006 No-Build	2006 Build	2026 No-Build	2026 Build
Noise Level Range (dBA)	62-74	63-74	63-74	64-75
Noise Impacts	13	15	15	19

The receivers in the southern neighborhood are well protected by the existing earthen berm in that area. There are no noise impacts for this area under the 2006 “Build” or “No-Build” alternatives or the 2026 “No-Build” alternative, and only two impacts under the 2026 “Build” alternative (both of these with predicted noise levels of 66.4 dBA). These noise impacts would be impractical to mitigate as the existing berm is already blocking the line-of-sight to the highway and the two impacted locations are at either end of the cluster where noise would be projected around the ends of any barrier option, thereby reducing the barrier’s effectiveness. Barriers in that area are determined to not be reasonable.

For the northern neighborhood at 86th Street with exposed lines-of-sight to the highway, several noise impacts are predicted for all analyzed alternatives. Predicted noise impacts are greatest for the 2026 “Build” alternative due to the predicted increase in traffic volumes within the project corridor, the slightly reduced distance between the source and the receivers, and higher average traffic operating speeds (as a result of added traffic lanes and higher Level of Service).

In addition to the residential clusters detailed above, there are a number of commercial properties within the vicinity of the proposed project improvements. Some of these commercial properties have outdoor areas where employees and visitors may occasionally spend time. Noise predictions where made for sample locations of the outdoor commercial areas for the 2026 “Build” alternative. Predicted noise levels there were generally between 66 and 72 dBA Leq for acoustically unshielded portions of the properties nearest to the highway.

Proposed Noise Mitigation Measures

A number of preliminary noise barrier designs were evaluated for their ability to mitigate noise impacts for the northern cluster. For these analyses a $215/square meter ($20/square foot) barrier construction cost was assumed. It was determined that a barrier approximate 4 meters (13 feet) high and 774 meters (2,540 feet) long starting from approximately 86th Street and extending north along the residential development would be both reasonable and feasible according to Indiana Department of Transportation policy. Modeling this preliminary barrier configuration predicts that such a barrier would provide an average noise reduction of approximately 7.6 dBA at a cost of approximately $25,500 per protected dwelling unit.

Noise Barrier Performance Summary (Northern Cluster)

Length	774 m
Height	4.0 m (constant)
Area	3,095 square meters
Estimated Cost	$665,425
Predicted Average Noise Reduction	7.6 dBA
Protected Dwelling Units	26
Estimated Cost per PDU	$25,593
Remaining Impacts	1

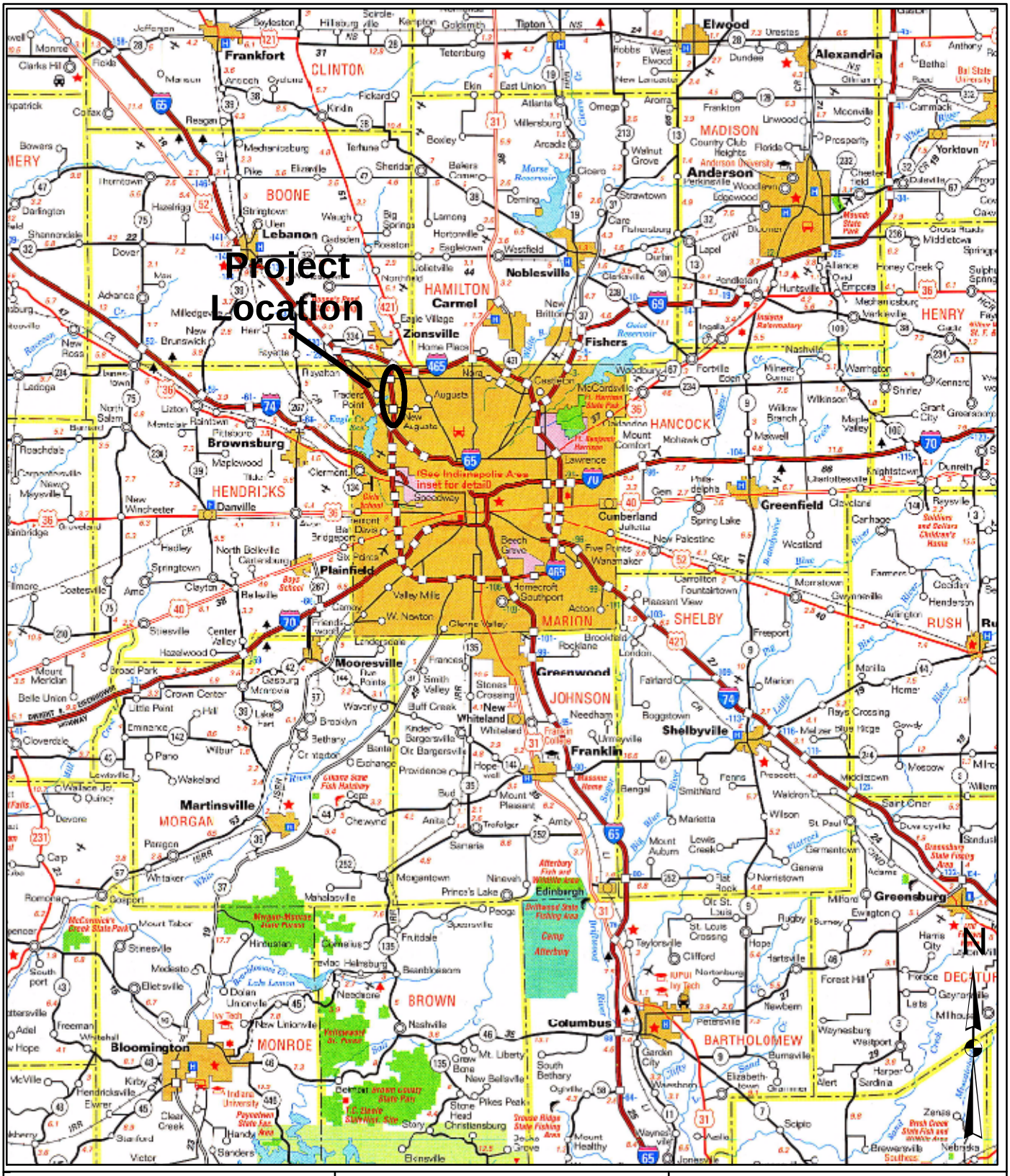
The receivers in the 71st Street neighborhood are well protected by the existing earthen berm in that area. There are no noise impacts for this cluster under the 2006 “Build” or “No-Build” alternatives or the 2026 “No-Build” alternative, and only two impacts under the 2026 “Build” alternative (both of these with predicted noise levels of 66.4 dBA). These noise impacts are considered to not be feasible or reasonable to mitigate as the existing berm is already blocking the line-of-sight to the highway and the two impacted locations are at either end of the cluster where noise would be projected around the ends of any barrier option, thereby reducing any barrier’s effectiveness. Preliminary estimates are that a barrier averaging approximately 3 meters (10 feet) high and approximately 150 meters (500 feet) long would be required to protect those two receivers. For these analyses a $215/square meter ($20/square foot) barrier construction cost was assumed. The estimated cost for that barrier is approximately $100,000, or $50,000 per protected dwelling unit.

The Noise Abatement Criteria C for commercial properties with outdoor use is 72 dBA. Consultation with the property management companies for the commercial areas within the project study area has indicated their opposition to incorporating any noise barriers along the highway frontage for those properties. The owner/tenants of the commercial properties have invested significant sums to assure they are located in a high visibility area along a major urban interstate highway. Constructing barriers along that frontage would deprive those properties of that sought-after visibility. These noise impacts are considered to

not be feasible or reasonable to mitigate because of the limited modeled impact at those locations and the desires of the affected property owners and tenants.

The noise barrier design proposals described here are strictly preliminary and a more detailed and rigorous barrier design will be developed as part of the final design process. The views of affected property owners will be solicited during a public information meeting to be conducted prior to final approval of the barrier recommendations. No formal consultation with the residential owners has occurred at this time, although there has been coordination with representatives of the West 86th Street neighborhood. The views of affected property owners will play a role in the final decision to provide noise level reductions. The analysis of traffic noise impacts will continue to be refined as the detailed design is developed.

Additional tables are attached showing noise predictions for individual receiver locations and a detailed barrier analysis worksheet.



PROPOSED PROJECT
I-465 IMPROVEMENTS
71st STREET and 86th STREET
INTERCHANGES

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LOCATION MAP

SCALE:

NOT TO SCALE

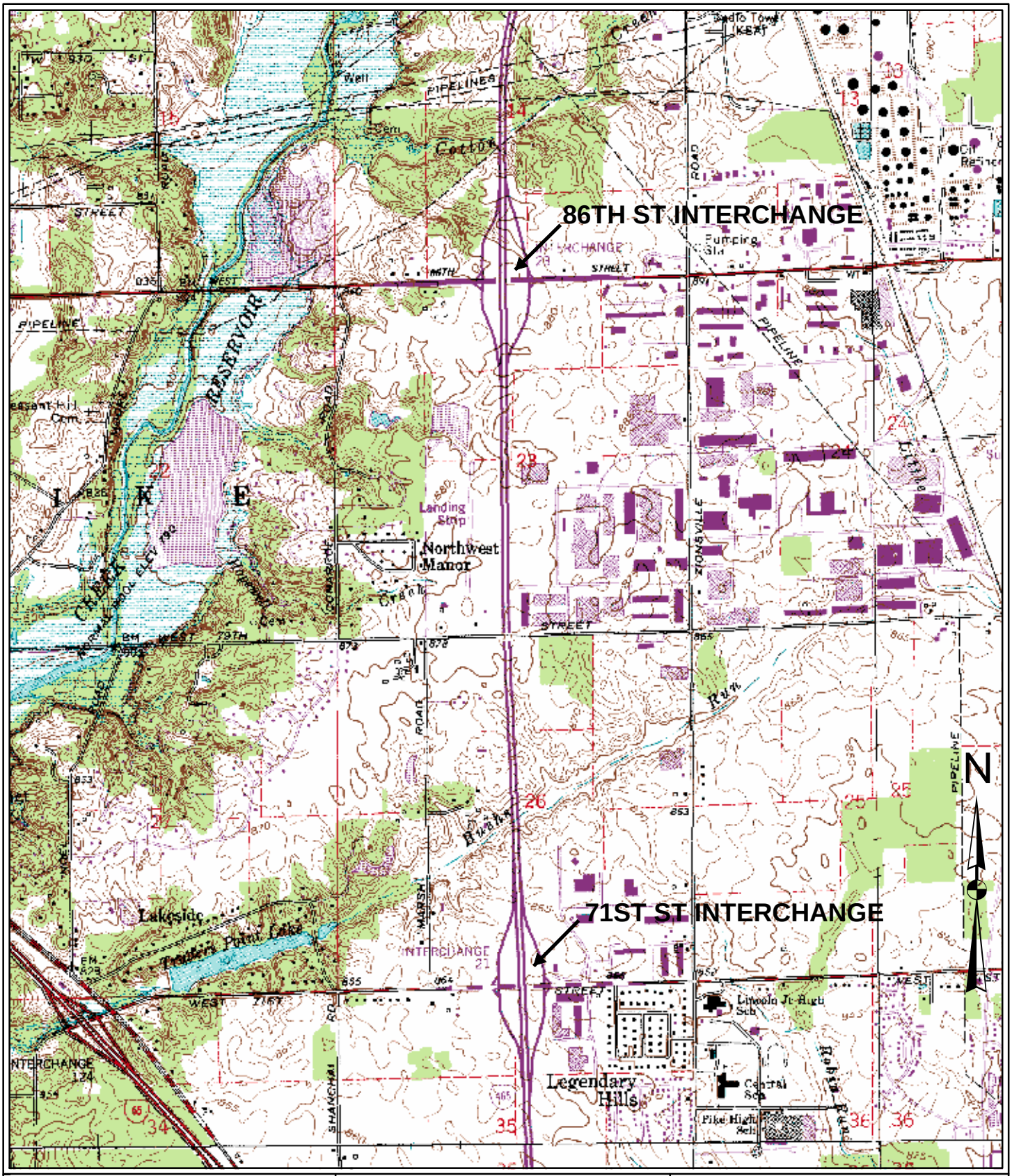
PROPOSED PROJECT

COUNTY: MARION

TOWNSHIP: PIKE

STATE: INDIANA

SHEET OF DATE 01/12/2004



PROPOSED PROJECT
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USGS TOPOGRAPHIC MAP

SCALE:

1 : 24,000

PROPOSED PROJECT

COUNTY: MARION

TOWNSHIP: PIKE

STATE: INDIANA

SHEET OF DATE 11/19/2003

PROPOSED PROJECT
I-465 IMPROVEMENTS
71st STREET and 86th STREET
INTERCHANGES

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AERIAL PHOTOGRAPH

SCALE:

1 : 24,000

PROPOSED PROJECT

COUNTY: MARION

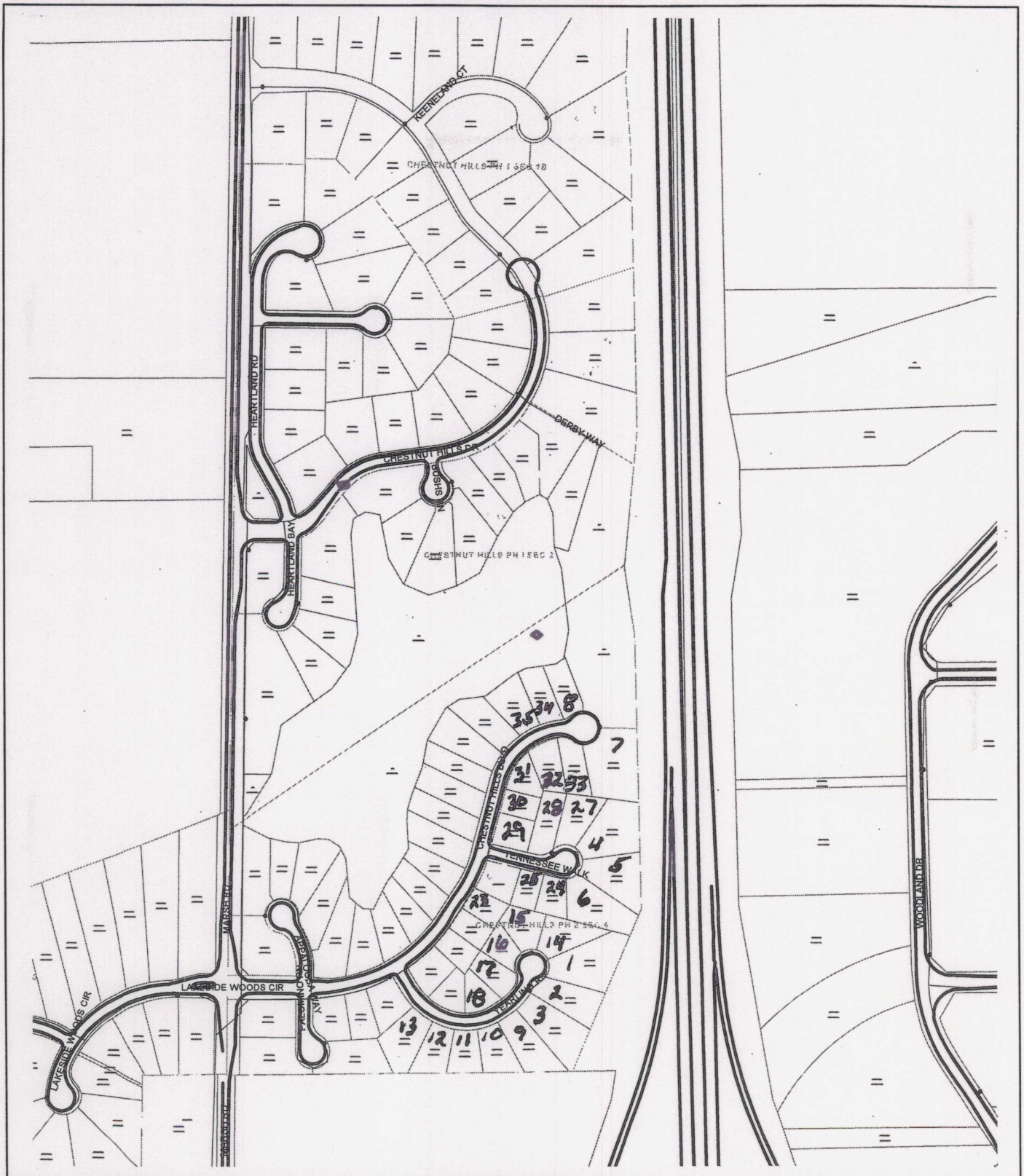
TOWNSHIP: PIKE

STATE: INDIANA

SHEET OF DATE 11/19/2003

I-465/71st Street (Southern Neighborhood), Predicted Noise Levels [dBA L_{eq}(h)]									
Receiver		2006				2026			
		No-Build		Build		No-Build		Build	
TNM ID	Address	Level	Impacts	Level	Impacts	Level	Impacts	Level	Impacts
1	6233	59.7	0	60.3	0	59.8	0	61.3	0
2	6239	58.6	0	59.2	0	58.6	0	60.2	0
3	6245	57.5	0	58.2	0	57.4	0	59.1	0
4	6218	64.8	0	65.4	0	65.1	0	66.4	1
5	6213	62.6	0	63.1	0	63.0	0	64.1	0
6	6219	59.8	0	60.3	0	60.0	0	61.3	0
7	7357	62.4	0	62.9	0	62.9	0	63.9	0
8	7370	59.3	0	59.8	0	59.4	0	60.8	0
9	6251	57.1	0	57.6	0	57.0	0	58.7	0
10	6301	58.4	0	58.6	0	58.3	0	59.9	0
11	6307	58.3	0	59.3	0	58.2	0	59.9	0
12	6311	58.2	0	59.2	0	58.1	0	59.8	0
13	6315	58.4	0	59.1	0	58.5	0	59.9	0
14	6228	59.3	0	59.8	0	59.3	0	60.8	0
15	6234	58.8	0	59.4	0	58.7	0	60.3	0
16	6240	59.2	0	59.9	0	59.1	0	60.8	0
17	6246	58.9	0	59.5	0	58.8	0	60.5	0
18	6302	59.1	0	59.4	0	59.0	0	60.7	0
19	6338	58.7	0	59.0	0	58.7	0	60.3	0
20	6325	58.6	0	59.1	0	58.5	0	60.1	0
21	6333	58.6	0	59.1	0	58.4	0	60.1	0
22	6381	58.3	0	58.8	0	58.1	0	59.9	0
23	7307	57.7	0	57.9	0	57.4	0	59.2	0
24	6225	59.5	0	60.1	0	59.5	0	61.1	0
25	6231	58.5	0	59.1	0	58.4	0	60.0	0
26	6315	58.0	0	58.3	0	57.9	0	59.5	0
27	6224	64.9	0	65.5	0	64.9	0	66.4	1
28	6230	60.8	0	61.4	0	60.7	0	62.4	0
29	7325	59.3	0	59.9	0	59.1	0	60.8	0
30	6331	57.9	0	58.5	0	57.8	0	59.4	0
31	7339	61.0	0	61.6	0	60.9	0	62.5	0
32	7345	63.1	0	63.7	0	63.0	0	64.6	0
33	7351	64.4	0	65.0	0	64.4	0	65.9	0
34	7368	59.0	0	59.5	0	58.9	0	60.5	0
35	7362	57.7	0	58.3	0	57.6	0	59.2	0
Minimum level		57.1		57.6		57		58.7	
Maximum level		64.9		65.5		65.1		66.4	
Total Impacts			0		0		0		2

Relative Noise Level Increases dBA L_{eq}(h):	Minimum	Maximum	Average
2006 Build over 2006 No-Build	0.2	1.0	0.6
2026 No-Build over 2006 No-Build	-0.2	0.5	0.0
2026 Build over 2026 No-Build	1.0	1.7	1.5
2026 Build over 2006 Build	0.6	1.3	1.0
2026 Build over 2006 No-Build	1.5	1.6	1.5



PROPOSED PROJECT
I-465 IMPROVEMENTS
71st STREET and 86th STREET
INTERCHANGES

ENGINEER:

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I-465/71ST STREET SOUTHERN CLUSTER

SCALE:

NOT TO SCALE

PROPOSED PROJECT

COUNTY: MARION

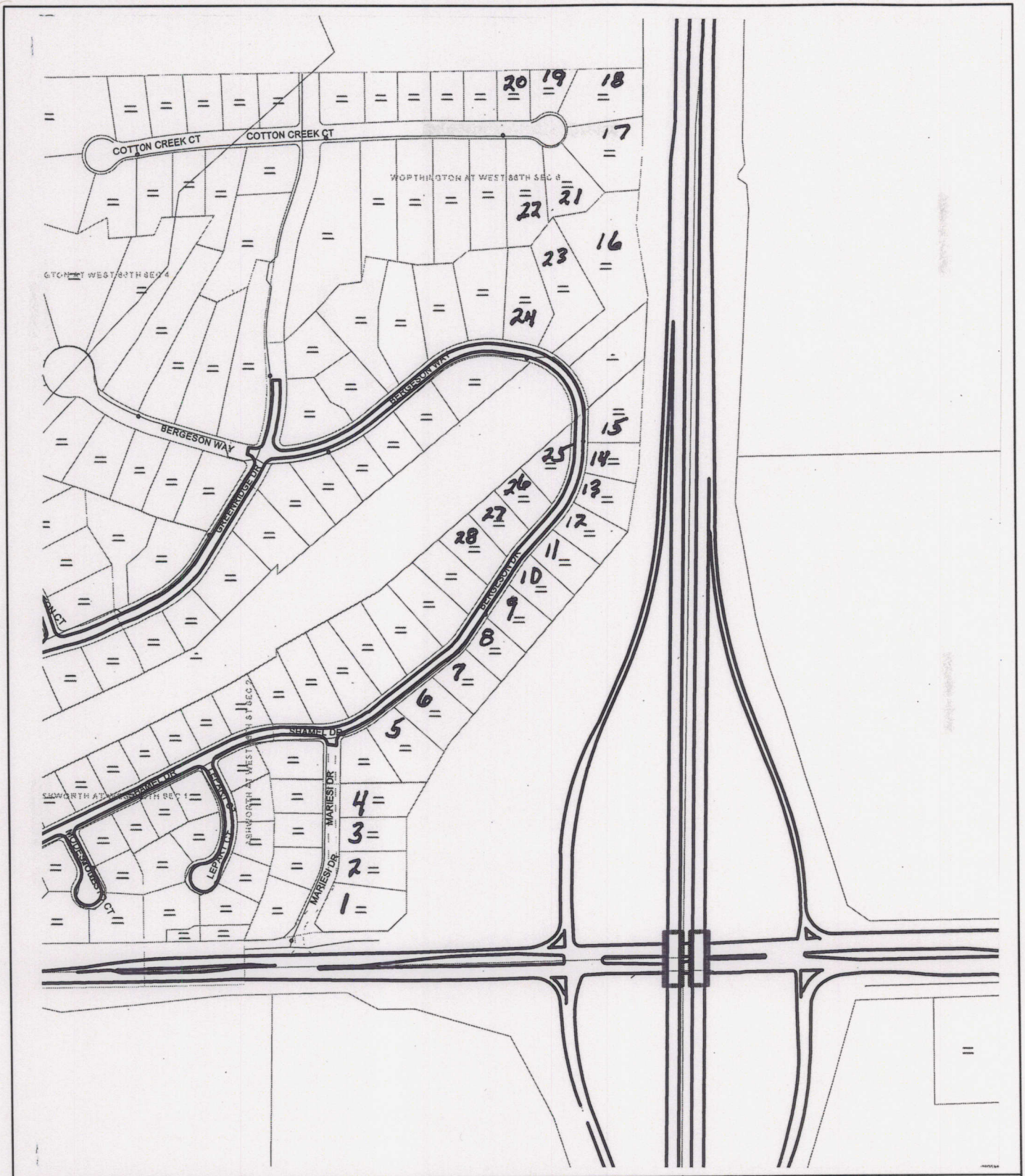
TOWNSHIP: PIKE

STATE: INDIANA

SHEET OF DATE 03/29/2004

I-465/86th Street (Northern Neighborhood), Predicted Noise Levels [dBA $L_{eq}(h)$]									
Receiver		2006				2026			
		No-Build		Build		No-Build		Build	
TNM ID	Address	Level	Impacts	Level	Impacts	Level	Impacts	Level	Impacts
1	8621	62.9	0	64.8	0	63.5	0	65.9	0
2	8631	62.9	0	64.3	0	63.4	0	65.5	0
3	8643	62.9	0	64.7	0	63.5	0	65.9	0
4	8719	62.7	0	63.5	0	63.1	0	64.7	0
5	8729	62.2	0	62.5	0	62.8	0	63.7	0
6	8735	62.5	0	63.7	0	63.0	0	64.8	0
7	8741	64.4	0	65.2	0	64.9	0	66.3	1
8	8805	64.8	0	66.4	1	65.4	0	67.5	1
9	8811	63.9	0	65.3	0	64.3	0	66.5	1
10	8817	65.5	0	67.1	1	66.1	1	68.2	1
11	8823	68.9	1	69.5	1	69.5	1	70.7	1
12	8829	70.9	1	71.6	1	71.4	1	72.8	1
13	8835	72.6	1	73.1	1	73.1	1	74.2	1
14	8903	73.7	1	73.8	1	74.1	1	74.9	1
15	8909	73.1	1	73.2	1	73.6	1	74.4	1
16	6214	70.0	1	70.0	1	70.6	1	71.1	1
17	6301	69.2	1	69.2	1	69.8	1	70.3	1
18	6302	70.6	1	70.7	1	70.9	1	71.9	1
19	6308	66.7	1	66.9	1	67.1	1	68.1	1
20	6316	64.9	0	65.2	0	65.2	0	66.3	1
21	6307	66.2	1	66.3	1	66.7	1	67.4	1
22	6315	63.2	0	63.5	0	63.8	0	64.7	0
23	6224	65.8	0	65.9	0	66.4	1	67.1	1
24	6302	63.3	0	63.6	0	63.9	0	64.8	0
25	8902	68.4	1	68.6	1	68.9	1	69.8	1
26	8828	67.8	1	68.4	1	68.2	1	69.5	1
27	8822	66.6	1	67.3	1	67.1	1	68.5	1
28	8816	63.6	0	64.5	0	64.2	0	65.7	0
Minimum level		62.2		62.5		62.8		63.7	
Maximum level		73.7		73.8		74.1		74.9	
Total Impacts			13		15		15		19

Relative Noise Level Increases dBA $L_{eq}(h)$:	Minimum	Maximum	Average
2006 Build over 2006 No-Build	0	1.9	0.7
2026 No-Build over 2006 No-Build	0.3	0.6	0.5
2026 Build over 2026 No-Build	0.5	2.4	1.3
2026 Build over 2006 Build	1.1	1.2	1.2
2026 Build over 2006 No-Build	1.1	3.0	1.8



PROPOSED PROJECT
I-465 IMPROVEMENTS
71st STREET and 86th STREET
INTERCHANGES

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I-465/86TH STREET NORTHERN CLUSTER

SCALE:

NOT TO SCALE

PROPOSED PROJECT

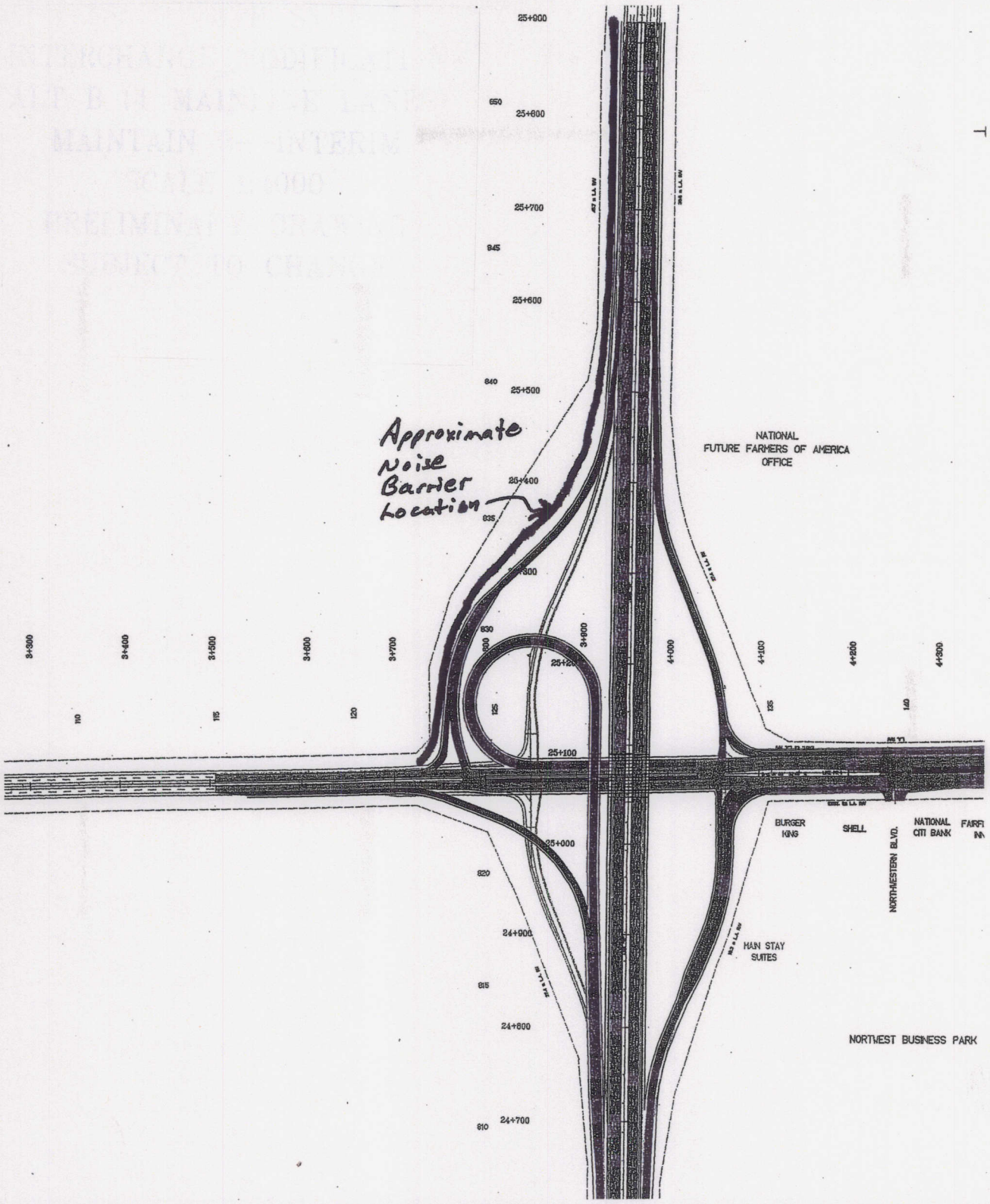
COUNTY: MARION

TOWNSHIP: PIKE

STATE: INDIANA

SHEET OF DATE 03/29/2004

I-465/86th Street (Northern Neighborhood) Preliminary Barrier Analysis							
Receiver		2026 Build		2026 Build			
		No Barrier		Barrier - (4.0 m constant - short)			
TNM ID	Address	Level	Impacts	Level	Impacts	Noise Reduction	Benefit
1	8621	65.9	0	63.1	0	2.8	0
2	8631	65.5	0	61.4	0	4.1	0
3	8643	65.9	0	61.0	0	4.9	1
4	8719	64.7	0	59.7	0	5.0	1
5	8729	63.7	0	58.8	0	4.9	1
6	8735	64.8	0	57.3	0	7.5	1
7	8741	66.3	1	60.0	0	6.3	1
8	8805	67.5	1	60.0	0	7.5	1
9	8811	66.5	1	58.5	0	8.0	1
10	8817	68.2	1	60.6	0	7.6	1
11	8823	70.7	1	62.5	0	8.2	1
12	8829	72.8	1	63.3	0	9.5	1
13	8835	74.2	1	65.2	0	9.0	1
14	8903	74.9	1	66.2	1	8.7	1
15	8909	74.4	1	64.9	0	9.5	1
16	6214	71.1	1	61.0	0	10.1	1
17	6305	70.3	1	60.1	0	10.2	1
18	6302	71.9	1	64.3	0	7.6	1
19	6308	68.1	1	61.0	0	7.1	1
20	6316	66.3	1	58.4	0	7.9	1
21	6307	67.4	1	58.2	0	9.2	1
22	6315	64.7	0	56.6	0	8.1	1
23	6224	67.1	1	58.0	0	9.1	1
24	6304	64.8	0	56.1	0	8.7	1
25	8902	69.8	1	62.3	0	7.5	1
26	8828	69.5	1	61.2	0	8.3	1
27	8822	68.5	1	61.3	0	7.2	1
28	8816	65.7	0	58.6	0	7.1	1
Minimum level		63.7		56.1			
Maximum level		74.9		66.2			
Total Impacts			19		1		26
Average Noise Reduction						7.6	
Estimated Total Barrier Cost							$665,425
Estimated Cost per Protected Dwelling Unit							$25,593



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71st STREET and 86th STREET
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APPROXIMATE NOISE BARRIER LOCATION

SCALE:

NOT TO SCALE

PROPOSED PROJECT
COUNTY: MARION
TOWNSHIP: PIKE
STATE: INDIANA
SHEET OF DATE 03/29/2004

Noise Analysis Log

Date: 3/15/2004
Project Name: I-465 West
Project Number: IN20020736
Technician: Josh(DLZ), JNS(ACE)
Weather: 50.3 deg. F
Wind Speed/Direction: 0-3 km/hr

Location	Receptor ID No.	Time		Distance to Roadway	Noise Meter Readings		
		Start	Stop		L(eq)	L(min)	L(max)
6251 Yearling Run	1	4:20pm	4:35pm	450'	66.0	63.2	68.8

Comments:
25' high earth berm in back of house. No line of sight with ramp or mainline. Measurement taken in backyard of residence.

Traffic Counts

	Autos, Vans, Light and Medium Trucks	Heavy Trucks
Southbound Mainline	838	63
Southbound Ramp	84	12
Northbound Mainline	755	28
Totals	1677	103
	1780	

Noise Analysis Log

Date: 3/15/2004
Technician: Josh(DLZ), JNS(ACE)
Project Name: I-465 West
Weather: 49.0 deg. F
Project Number: IN20020736
Wind Speed/Direction: 4-5 km/hr

Location	Receptor ID No.	Time		Distance to Roadway	Noise Meter Readings		
		Start	Stop		L(eq)	L(min)	L(max)
7357 Chestnut Hills Blvd	2	4:50pm	5:05pm	200'	64.4	59.1	74.1

Comments:
Measurement taken in backyard. 15' High earth berm. No line of sight with Mainline

Traffic Counts

	Autos, Vans, Light and Medium Trucks	Heavy Trucks
Southbound Mainline	1099	46
Southbound Ramp	--	--
Northbound Mainline	1046	27
Totals	2145	73
	2218	

Noise Analysis Log

Date: 3/15/2004
Technician: Josh(DLZ), JNS(ACE)
Project Name: I-465 West
Weather: 46.3 deg. F
Project Number: IN20020736
Wind Speed/Direction: 4-6 km/hr

Location	Receptor ID No.	Time		Distance to Roadway	Noise Meter Readings		
		Start	Stop		L(eq)	L(min)	L(max)
Utility Easement	3	5:26pm	5:41pm	150'	ND	ND	ND
Utility Easement	3b	5:42pm	5:57pm	150'	75.8	73.3	78.9

Comments:
Direct line of sight with mainline. Measurement taken from utility easement near ramp. There are currently houses where there are platted lots on aerials (north of measurement point) adjacent to utility easement. Traffic counted on (3) but data was lost when meter stopped responding. 3b consists of noise measurements. Traffic was not counted

Traffic Counts

	Autos, Vans, Light and Medium Trucks	Heavy Trucks
Southbound Mainline	931	48
Southbound Ramp	--	--
Northbound Mainline	984	16
Totals	1915	64
	1979	

Noise Analysis Log

Date: 3/15/2004
Project Name: I-465 West
Project Number: IN20020736
Technician: Josh(DLZ), JNS(ACE)
Weather: 46.4 deg. F
Wind Speed/Direction: 3-4 km/hr

Location	Receptor ID No.	Time		Distance to Roadway	Noise Meter Readings		
		Start	Stop		L(eq)	L(min)	L(max)
8805 Bergerson Dr	4	6:01pm	6:16pm	350'	74.6	72.9	77.8

Comments:
Line of sight with ramp and mainline. Measurement taken in backyard

Traffic Counts

	Autos, Vans, Light and Medium Trucks	Heavy Trucks
Southbound Mainline	520	42
Southbound Ramp	96	22
Northbound Mainline	584	21
Totals	1200	85
	1285	

Noise Analysis Log

Date: 3/15/2004
Technician: Josh(DLZ), JNS(ACE)
Project Name: I-465 West
Weather: 46.4 deg. F
Project Number: IN20020736
Wind Speed/Direction: 3-4 km/hr

Location	Receptor ID No.	Time		Distance to Roadway	Noise Meter Readings		
		Start	Stop		L(eq)	L(min)	L(max)
8741 Bergeson Dr	5	6:24pm	6:39pm	450	59.9	54.9	65.8

Comments:
Taken in backyard, Was taken in a depression caused by terrain effects. No traffic counts recorded but it is noted that the traffic patterns were similar to readings taken at receptor ID No. 4

Traffic Counts

	Autos, Vans, Light and Medium Trucks	Heavy Trucks
Southbound Mainline		
Southbound Ramp		
Northbound Mainline		
Totals	0	0
	0	